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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

C&amp;F1032-035

U.S. APPLICATION NO. (If known, see 37 CFR 1.5

09/937163

INTERNATIONAL APPLICATION NO.

PCT/EP00/02662

INTERNATIONAL FILING DATE

27 March 2000

PRIORITY DATE CLAIMED

26 March 1999

TITLE OF INVENTION

METHODS OF PRODUCING A LAMINATED PACKAGE AND THE LAMINATED  
PACKAGE PRODUCED THEREBY

APPLICANT(S) FOR DO/EO/US

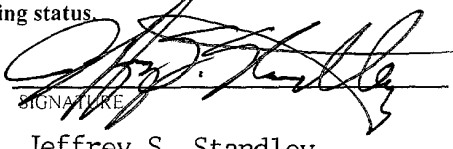
Hans Bomer and Matthias Dammers

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☐ Other items or information:

|  |              |  |            |    |     |    |
|--|--------------|--|------------|----|-----|----|
| U.S. APPLICATION NO. <b>09/937163</b><br>INTERNATIONAL APPLICATION NO. <b>PCT/EP00/02662</b>   |              | ATTORNEY'S DOCKET NUMBER<br><b>C&amp;F1032-035</b>   |            |    |     |    |
| 21. <input checked="" type="checkbox"/> The following fees are submitted:<br><b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b><br>Neither international preliminary examination fee (37 CFR 1.482)<br>nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO<br>and International Search Report not prepared by the EPO or JPO. .... <b>\$1000.00</b><br><br>International preliminary examination fee (37 CFR 1.482) not paid to<br>USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$860.00</b><br><br>International preliminary examination fee (37 CFR 1.482) not paid to USPTO<br>but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b><br><br>International preliminary examination fee (37 CFR 1.482) paid to USPTO<br>but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b><br><br>International preliminary examination fee (37 CFR 1.482) paid to USPTO<br>and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b><br><br><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b> |              | <b>CALCULATIONS PTO USE ONLY</b><br><br><br><br><br><br><br><br><br><br><table style="margin: auto;"> <tr> <td style="width: 50%;">\$</td> <td style="width: 25%; text-align: right;">860</td> <td style="width: 25%; text-align: right;">00</td> </tr> </table> |            | \$ | 860 | 00 |
| \$   | 860          | 00   |            |    |     |    |
| Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30<br>months from the earliest claimed priority date (37 CFR 1.492(e)).   |              | <table style="margin: auto;"> <tr> <td style="width: 50%;">\$</td> <td style="width: 25%; text-align: right;">130</td> <td style="width: 25%; text-align: right;">00</td> </tr> </table>   |            | \$ | 130 | 00 |
| \$   | 130          | 00   |            |    |     |    |
| CLAIMS   | NUMBER FILED | NUMBER EXTRA   | RATE       |    |     |    |
| Total claims   | 13 - 20 =    | 0  | x \$18.00  |    |     |    |
| Independent claims   | 1 - 3 =      | 0  | x \$80.00  |    |     |    |
| MULTIPLE DEPENDENT CLAIM(S) (if applicable)  |              |  | + \$270.00 |    |     |    |
| <b>TOTAL OF ABOVE CALCULATIONS =</b>   |              |  | \$ 990 00  |    |     |    |
| <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above<br>are reduced by 1/2.  |              |  |            |    |     |    |
| <b>SUBTOTAL =</b>  |              |  | \$ 990 00  |    |     |    |
| Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30<br>months from the earliest claimed priority date (37 CFR 1.492(f)).   |              |  |            |    |     |    |
| <b>TOTAL NATIONAL FEE =</b>  |              |  | \$ 990 00  |    |     |    |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be<br>accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). <b>\$40.00</b> per property +   |              |  |            |    |     |    |
| <b>TOTAL FEES ENCLOSED =</b>   |              |  | \$ 990 00  |    |     |    |
|  |              | Amount to be<br>refunded:  | \$         |    |     |    |
|  |              | charged:   | \$         |    |     |    |
| a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>990.00</u> to cover the above fees is enclosed.<br><br>b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.<br>A duplicate copy of this sheet is enclosed.<br><br>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any<br>overpayment to Deposit Account No. <u>19-4076</u> . A duplicate copy of this sheet is enclosed.<br><br>d. <input type="checkbox"/> Fees are to be charged to a credit card. <b>WARNING:</b> Information on this form may become public. <b>Credit card</b><br><b>information should not be included on this form.</b> Provide credit card information and authorization on PTO-2038.   |              |  |            |    |     |    |
| <b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.</b>  |              |  |            |    |     |    |
| SEND ALL CORRESPONDENCE TO:<br><br>Jeffrey S. Standley<br>Standley & Gilcrest LLP<br>495 Metro Place South, Suite 210<br>Dublin, Ohio 43017<br>United States of America  |              |  |            |    |     |    |
|  |              | <br>SIGNATURE  |            |    |     |    |
|  |              | Jeffrey S. Standley<br>NAME  |            |    |     |    |
|  |              | 34,021<br>REGISTRATION NUMBER  |            |    |     |    |

Express Mail No.: EL622264221US

Date of Deposit: September 21, 2001

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Serial No.: Not yet assigned  
International Application No.: PCT/EP00/02662  
International Filing Date: 27 March 2000  
Priority Filing Date: 26 March 1999  
Group Art Unit: Not yet assigned  
Instant Application Filed: September 14, 2001  
Applicant: Bomer, et al.  
Entitled: METHODS OF PRODUCING A LAMINATED  
PACKAGE AND THE LAMINATED PACKAGE  
PRODUCED THEREBY

Commissioner for Patents  
BOX PCT  
Washington, D.C. 20231

Sir:

**PRELIMINARY AMENDMENT**

The Examiner is respectfully requested to enter the following Amendment and to consider the accompanying Remarks before examining the above-identified application. Further consideration in light thereof is respectfully requested.

**In the Specification:**

On page 1, immediately proceeding the title, please insert the following:

-- Inventors: Hans Bomer  
Matthias Dammers --

2003-09-21 04:30

On page 1, immediately preceding the first paragraph, please insert –  
BACKGROUND AND SUMMARY OF THE INVENTION --.

On page 6, prior to the paragraph beginning “This invention is explained in  
greater detail below ...”, please insert – BRIEF DESCRIPTION OF THE DRAWINGS --.

On page 7, prior to the paragraph beginning “Fig. 1 shows the process ...”,  
please insert – DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT --.

In the Claims:

Please delete original claims 1 – 15 and replace them with new claims 16 – 28. Please  
enter this Preliminary Amendment prior to calculating the filing fee.

16. (New) A method of producing a laminated package with an opening that is  
sealed by a tear-off strip, wherein the opening is punched out of a packaging material,  
the packaging material is coated at least in the area of the opening, a package sleeve is  
created from the packaging material, a tear-open strip is attached to the opening in the  
package sleeve, and wherein the package sleeve is slid onto a mandrel of a mandrel  
wheel upstream from a filling machine for filling the package and the tear-open strip is  
attached either at the mandrel of the mandrel wheel or in the region of a pocket with the  
help of an anvil.

17. (New) A method according to Claim 16, wherein the package sleeve is  
conveyed to the filling machine in such a way that its opening points outward across the  
working direction of the filling machine.

18. (New) A method according to Claim 16, wherein the package sleeve is rotated about its longitudinal axis by approximately 90° between a magazine for accommodating prefabricated package sleeves on the filling machine and the location where the tear-off strip is attached.
19. (New) A method according to Claim 16, wherein the tear-off strip is applied between the mandrels of a mandrel wheel which is driven in cycles, the tear-off strip applied using at least one welding device which is inserted between two mandrels and is retracted again after the tear-off strip has been welded.
20. (New) A method according to Claim 16, wherein the tear-off strip or a pouring element is applied upstream from an aseptic station of the filling machine.
21. (New) A method according to Claim 16, wherein the tear-off strip or a pouring element is attached by welding.
22. (New) A method according to Claim 21, wherein the tear-off strip or a pouring element is attached by ultrasonic welding or high-frequency welding.
23. (New) A method according to Claim 16, wherein the tear-off strip or a pouring element is attached by gluing.

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24. (New) A method according to Claim 16, wherein the tear-off strip or a pouring element is pulled off from a supply roll having a plurality of tear-off strips or pouring elements.
25. (New) A method according to Claim 24, wherein the tear-off strip or the pouring element is conveyed by means of feed rollers and is detached from the supply roll by a cutting device.
26. (New) A method according to Claim 16, wherein the tear-off strip consists of a tear-resistant aluminum strip.
27. (New) A method according to Claim 16, wherein the filling machine is a filling machine having multiple lanes.
28. (New) A laminated package having an opening that is sealed by a tear-off strip, as produced by the method of Claim 16.

#### In the Abstract

In the Abstract, line 7, delete "(22)", line 8, delete "(1)", line 9, delete "(1)", line 10, delete "(22)", line 11, delete "(5)", line 14, delete "(6)" and "(9)", line 15, delete "(6)", line 16, delete "(24)" and "(22)", line 17, delete "(5)" and "(6)", line 18, delete "(9)", and line 19, delete "(6)".

In line 20, please delete "Fig. 4 is intended for the abstract".

**REMARKS**

The present application was filed under 35 USC 371 claiming priority to PCT Application No. PCT/EP00/02662. Originally filed Claims 1 – 15 have been canceled and new claims 16 – 28 have been added.

As a result of the foregoing Amendment, claims 16 - 28 are pending in the above-identified application. The Examiner is requested to consider the pending claims which are believed to be new and unobvious over the prior art.

The Abstract has been amended to delete the figure reference numbers.

In view of the foregoing Amendment and Remarks, Applicants respectfully submit that the claims of the present application are now in condition for allowance and such action is earnestly requested.

Respectfully submitted,

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Date:

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APPLICATION FOR UNITED STATES LETTERS PATENT

FOR

METHODS OF PRODUCING A LAMINATED PACKAGE AND THE LAMINATED  
PACKAGE PRODUCED THEREBY

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METHODS OF PRODUCING A LAMINATED PACKAGE AND THE  
LAMINATED PACKAGE PRODUCED THEREBY

This invention concerns two methods of producing a laminated package, in particular a beverage package, with an opening that is closed by a tear-off strip, as well as a laminated package produced by these methods.

Liquid products and highly viscous products with lumpy components are offered today to a great extent in laminated packages. There is often a desire on the part of consumers for laminated packages having a simple, manually functioning opening device in particular. Various types of opening and pouring elements are known, such as screw closures, snap closures, adhesive strip closures or tear-off strips. As a rule, the additional expense associated with attaching such opening and pouring elements substantially increases the cost of the respective laminated package.

The object of the present invention is to provide an inexpensive laminated package with an opening closed by a tear-off strip and to provide an inexpensive method of producing such a laminated package.

This object is achieved through the following steps in a first alternative of a generic method:

- punching out an opening in a packaging material,
- coating the packaging material at least in the area of the opening,

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- creating a package sheathing from the coated packaging material,
- conveying the package sheathing to a filling machine or to an equipment unit upstream from the filling machine, and
- attaching a tear-open strip to the opening in the package sheathing in the filling machine or in the equipment unit upstream from the filling machine.

As an alternative, this object is achieved through the following steps:

- punching out an opening in a packaging material,
- coating the packaging material at least in the area of the opening,
- applying a tear-off strip or a pouring element to the opening in the packaging material in the filling machine or in an equipment unit upstream from the filling machine,
- creating a package sheathing from the coated packaging material, and
- conveying the package sheathing to a filling machine or to an equipment unit upstream from the filling machine.

Both of the methods according to this invention are characterized in that punching out the opening in the packaging material and applying the tear-off strip or the

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pouring element to the opening in the packaging material are performed in a proven manufacturing process using a filling machine in an integrated fashion. Due to the integrated or parallel execution, the required process steps for producing an opening closed by a tear-off strip or by a pouring element are carried out essentially without requiring any additional time and thus inexpensively. No separate applicator for the hole punching, no sealing of an internal label and no sealing of the tear-off strip or the pouring element are necessary.

If the filling machine is equipped with a station for sterilization of the laminated package, the tear-off strip or the pouring element should preferably be attached before the sterilization zone.

In the case of a filling machine with a mandrel wheel for sealing the bottom of prefabricated package sheathing, it is also advantageous if the tear-off strip is mounted on a mandrel of the mandrel wheel. In this case, the mandrel is used as an anvil. This is advantageous in particular when the tear-off strip is attached by ultrasonic welding or high-frequency welding. As an alternative, the tear-off strip may also be attached by gluing.

A favorable possible application for the tear-off strip or the pouring element is also obtained when the package sheathing is fed to the filling machine in such a way that its opening points toward the outside across the working direction of the filling machine.

According to another advantageous embodiment of the method according to this invention, the respective

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package sheathing may be rotated about its longitudinal axis by approximately 90° between a magazine for accommodating prefabricated package sheathing on the filling machine and the location where the tear-off strip or the pouring element is attached.

Additional advantageous features of the method according to this invention are characterized in the subordinate claims.

This invention is explained in greater detail below on the basis of a drawing illustrating various embodiments according to a first alternative of the production method according to this invention, showing schematically in detail:

Figure 1 a diagram of the process steps for production of prefabricated package sheathing;

Figure 2 a diagram of a filling machine with a mandrel wheel for closing and sealing the bottom of prefabricated package sheathing according to Figure 1;

Figure 3 a diagram of process steps according to this invention on a filling machine, where the tear-off strip is mounted on a mandrel wheel unit upstream from the filling machine;

Figure 4 a perspective diagram of a device for welding a tear-off strip on the mandrel of a mandrel wheel;

Figure 5 a diagram of the process steps within a filling machine operating by the method according to this

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invention as shown in Figure 2, where the tear-off strip is attached in a chain between the mandrel wheel and an aseptic station; and

Figure 6 the rotation of a prefabricated package sheathing within a filling machine for two production lines.

Figure 1 shows the process steps for production of package sheathing. The rolled-up cardboard raw material 1 is coated on one side in the traditional manner with a barrier layer 2, preferably aluminum foil, and then is coated on both sides with polyethylene film 3. Before the coating, openings designed preferably as drip holes are punched in the cardboard raw material 1. However, it is also possible for the openings to be punched only after coating the cardboard raw material 1 with polyethylene film on the outside, followed by another coating with aluminum foil and/or polyethylene film. The coated packaging material is then printed and divided into blanks 4 in a punch and also provided with grooves or an edge embossing for folding later to form a cube-shaped package.

The package blanks 4 are then folded to form a package sheathing 5 and sealed along the overlapping longitudinal edges with an airtight and fluid-tight seal. The package sheathing 5 sealed with a longitudinal seam is folded flat and aligned in rows one after the other and joined in a certain number to form shipping cartons or the like.

Such prefabricated package sheathing 5 is then sent to a filling machine which may have two, three or more production lines. The filling machine 6 diagramed in

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Figure 2 has two production lines and is equipped with two magazines 7 accordingly. To facilitate the separation of the package sheathings 5, they are subjected to vibration in magazines 7 in a known way and aligned laterally. Sheathings 5 are then removed individually by suction devices from magazines 7, shaped into rectangles and pushed onto a mandrel 8. The filling machine is equipped with two mandrel wheels 9 arranged on a common shaft, each wheel having six mandrels 8 arranged at equal angles.

Various stations which serve to produce the bottom of a package on the respective package sheathing 5 are arranged on the circumference of mandrel wheels 9. First, the areas of the package bottom to be sealed are activated with hot air. While the respective mandrel wheel 9 is conveying the package sheathing 5 further to a bottom pressing station, rotating transverse folding mechanisms and a longitudinal folding mechanism shape the bottom of the package. In the bottom pressing station, the package bottom is then completely pressed and sealed by a bottom pressing stamp on the end face of mandrel 8.

Following this, the package 10 is stripped from the mandrel and pushed into a cell (not further identified) which is designed with a plurality of other cells on a peripheral endless chain 11 and assumes the role of further conveyance through various stations along the chain until they are conveyed away. The arrow A shows the working direction of the filling machine.

One or more stations for sterilization of the package may be arranged along the chain 11 of the filling machine 6 upstream from the filling station 12. Sterilization can

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be performed preferably by injecting hydrogen peroxide vapor into the packages 10 which are open at the top. Downstream from the filling station 12 are arranged sealing tools which fold the package gable and preferably seal it airtight above the filling level by using ultrasound. The sealing tools are followed by additional folding tools which fold the package gable to form a flat roof. Then the polyethylene is heated with hot air at the gable triangles (so-called "package ears") and along the narrow sides of package 10, the gable triangles are folded down and sealed on the narrow sides of package 10. The finished package is then pushed out of the respective cell into a stacker (not shown) and finally transferred to a delivery device (not shown) in the next machine cycle.

As shown in Figure 2, the filling machine 6 according to a first embodiment of the method according to this invention may have a device 15 on mandrel wheel 9' with which a tear-off strip can be welded or glued to the layered opening of the package sheathing 5. A second embodiment of the method according to this invention is diagramed schematically in Figure 3. To allow more time for mounting the tear-off strip in comparison with the method illustrated in Figure 2, an additional mandrel wheel 9' for mounting the tear-off strip is provided upstream from the mandrel wheel 9 which provides the bottom sealing function of the filling machine 6 in this embodiment. The package sheathing 5 conveyed in stack 16 is in turn removed by suction devices from magazines arranged across working direction A of filling machine 6, shaped into rectangles and pushed onto the respective mandrel 8 of the proposed mandrel wheel 9'. Thus,

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mounting of the tear-off strip is performed here before the bottom sealing step.

The longitudinal seam of a cube-shaped laminated package is usually arranged on its broad side, the opening or drip hole in the package is usually arranged next to the longitudinal seam in the area of the package gable, and good accessibility to the opening or drip hole facilitates secure mounting of the tear-off strip, so the mandrels 8 of the mandrel wheels 9, 9' in Figures 2 and 3 are each rotated by 90° with respect to those of known filling machines 6. The longitudinal seam of the package sheathing is thus arranged on the axial outside of mandrel wheel 9 or 9' on which the device 15 is arranged for mounting the tear-off strip.

A transfer station 17 is provided with the mandrel wheel 9' in Figure 3 according to the mandrel wheel 9 in Figure 2; after the bottom is produced, the package is stripped off from the mandrel at this station and pushed into a cell in the chain 11. The transfer station is followed in working direction A of filling machine 6 by a sterilization station 18, a filling station 19, a gable web seam sealing station 20, a gable shaping station (ear sealing station) 21, a stacker and a delivery device.

Figure 4 shows a schematic diagram of a device 15 for attaching a tear-off strip to the coated opening 22 of the package sheathing 5. The molded package sheathing is pushed onto a mandrel 8, serving as a mandrel for a sonotrode 23, by means of which a tear-off strip 24, which is preferably made of a tear-resistant, weldable aluminum strip, is welded to the coated opening 22 of the package sheathing 5. For this purpose, the tear-off strip

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24 is pulled off from a supply roll 25 and supplied to the application station through supply rolls 26 which are arranged in parallel and convey the tear-off strip by frictional engagement. As soon as the tear-off strip 24 which is to be attached is correctly oriented and is bonded securely enough to the package sheathing 5, it is cut off from the supply roll 25 by a cutting device 27. It can be seen that in this case the wide side of the package sheathing 5 with the coated opening 22 points in the direction of rotation of the mandrel wheel 9. The mandrel wheel 9 here is rotated in cycles, and the sonotrode 23 is inserted from the outside between two mandrels during the pauses in movement of mandrel wheel 9 and then is retracted again after welding the sealable tear-off strip 24 to the respective mandrel.

Figure 5 shows another embodiment of this invention. In contrast with the embodiments illustrated in Figures 2 and 4, the tear-off strip is not applied to the mandrel 8 of a mandrel wheel 9, but instead is applied along the cell chain 11 between the transfer station and the aseptic station 28 by means of a welding or gluing device 15 and an anvil 8a. The package sheathing 5 is again supplied in a stack 16 to the filling machine across its working direction A, so that the coated opening of package sheathing 5 in the chain points outward. The wide sides of the package sheathing 5 or mandrel 8 thus run parallel to the working direction A of the filling machine. The mandrel wheel 9 here serves exclusively as a guide for the package sheathing 5 during the sealing of the bottom. The other stations along the chain 11 correspond to those in Figure 3.

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If package sheathings 5 are supplied to the filling machine across the working direction as in the embodiments illustrated in Figures 2, 3 and 5, the machine is designed to be relatively broad, because the magazines with the stacks 16 are then arranged across the longitudinal axis of the filling machine. A filling machine with a narrow design can be implemented if the package sheathing 5 is rotated by approximately  $90^\circ$  between the respective magazine 7 and the position where the tear-off strip is attached. This is illustrated in schematic diagrams in Figure 6 for a filling machine with two production lines, where the arrow A indicates working direction of the machine. It can be seen here that the left package sheathing which is already shaped here is rotated  $90^\circ$  clockwise in the filling machine, while the package sheathing on the right which is also already shaped is rotated counterclockwise by  $90^\circ$ . The different directions of rotation lead to an offset of application sites 28 for the tear-off strips in the production lines. However, both application sites 28 face outward and are thus readily accessible.

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C L A I M S

1. A method of producing a laminated package with an opening (22) which is sealed by a tear-off strip (24),

characterized by the following steps:

- punching out an opening (22) in a packaging material (1),
- coating the packaging material (1) at least in the area of the opening (22),
- creating a package sheathing (5) from the coated packaging material,
- conveying the package sheathing to a filling machine (6) or to an equipment unit (9') upstream from the filling machine (6), and
- attaching a tear-open strip (24) to the opening (22) in the package sheathing (5) in the filling machine (6) or in the equipment unit (9') upstream from the filling machine (6).

2. A method according to Claim 1,

characterized in that the tear-off strip (24) is mounted on a mandrel (8) of a mandrel wheel (9) or

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by means of an anvil (8a) in the area of a cell chain (11).

3. A method according to Claim 1 or 2,

characterized in that the package sheathing (5) is conveyed to the filling machine (6) in such a way that its opening (22) points outward across the working direction (A) of the filling machine (6).

4. A method according to one of Claims 1 through 3,

characterized in that the package sheathing (5) is rotated about its longitudinal axis by approximately 90° between a magazine (7) for accommodating prefabricated package sheathing (5) on the filling machine (6) and the location (28) where the tear-off strip (24) is attached.

5. A method according to one of Claims 1 through 4,

characterized in that the tear-off strip (24) is applied between the mandrels of a mandrel wheel (9) which is driven in cycles using at least one welding device (23) which is inserted between two mandrels and is retracted again after the tear-off strip (24) has been welded.

6. A method of producing a laminated package with an opening (22) which is sealed by a tear-off strip (24),

characterized by the following steps:

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- punching out an opening in a packaging material,
- coating the packaging material at least in the area of the opening,
- applying a tear-off strip or a pouring element to the opening in the packaging material in the filling machine or in an equipment unit upstream from the filling machine,
- creating a package sheathing from the coated packaging material, and
- conveying the package sheathing to a filling machine or to an equipment unit upstream from the filling machine.

7. A method according to one of Claims 1 through 6,  
  
characterized in that the tear-off strip (24) or the pouring element is applied upstream from an aseptic station (28) of the filling machine (6).
8. A method according to one of Claims 1 through 7,  
  
characterized in that the tear-off strip (24) or the pouring element is attached by welding.

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9. A method according to Claim 8,

characterized in that the tear-off strip (24) or the pouring element is attached by ultrasonic welding or high-frequency welding.

10. A method according to one of Claims 1 through 7,

characterized in that the tear-off strip (24) or the pouring element is attached by gluing.

11. A method according to one of Claims 1 through 10,

characterized in that the tear-off strip (24) or the pouring element is pulled off from a supply roll (25) having a plurality of tear-off strips.

12. A method according to Claim 11,

characterized in that the tear-off strip (24) or the pouring element is conveyed by means of feed rollers (26) and is detached from the supply roll (25) by a cutting device (27).

13. A method according to one of Claims 1 through 12,

characterized in that the tear-off strip (24) consists of a tear-resistant aluminum strip.

14. A method according to one of Claims 1 through 13,

characterized in that the filling machine (6) is a filling machine having multiple lanes.

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15. A laminated package with an opening (22) which is sealed by a tear-off strip (24),

characterized in that the package is produced by the method according to one of Claims 1 through 14.

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A B S T R A C T

Methods of producing a laminated package with an opening which is sealed by a tear-off strip or a pouring element as well as a corresponding laminated package are described. To be able to produce a laminated package with such a closure inexpensively, the following steps are provided in the method according to this invention:

- punching out an opening (22) in a packaging material (1),
- coating the packaging material (1) at least in the area of the opening (22),
- creating a package sheathing (5) from the coated packaging material,
- conveying the package sheathing to a filling machine (6) or to an equipment unit (9') upstream from the filling machine (6), and
- attaching a tear-open strip (24) to the opening (22) in the package sheathing (5) in the filling machine (6) or in the equipment unit (9') upstream from the filling machine (6).

Figure 4 is intended for the abstract.

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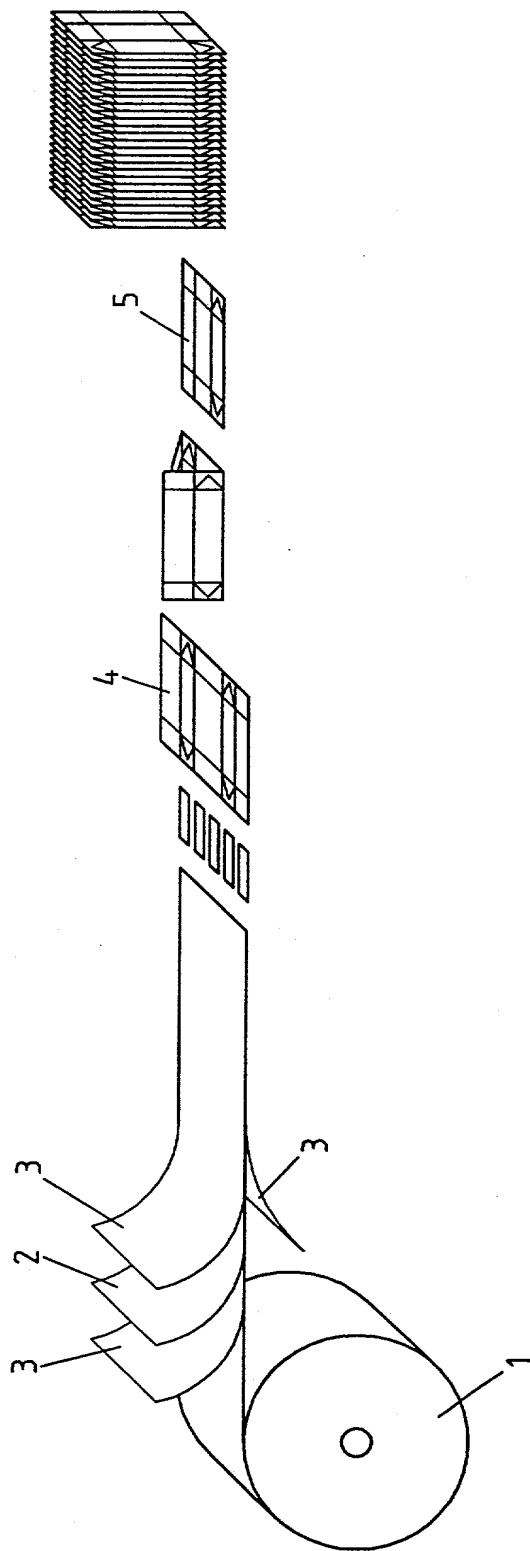


Fig. 1

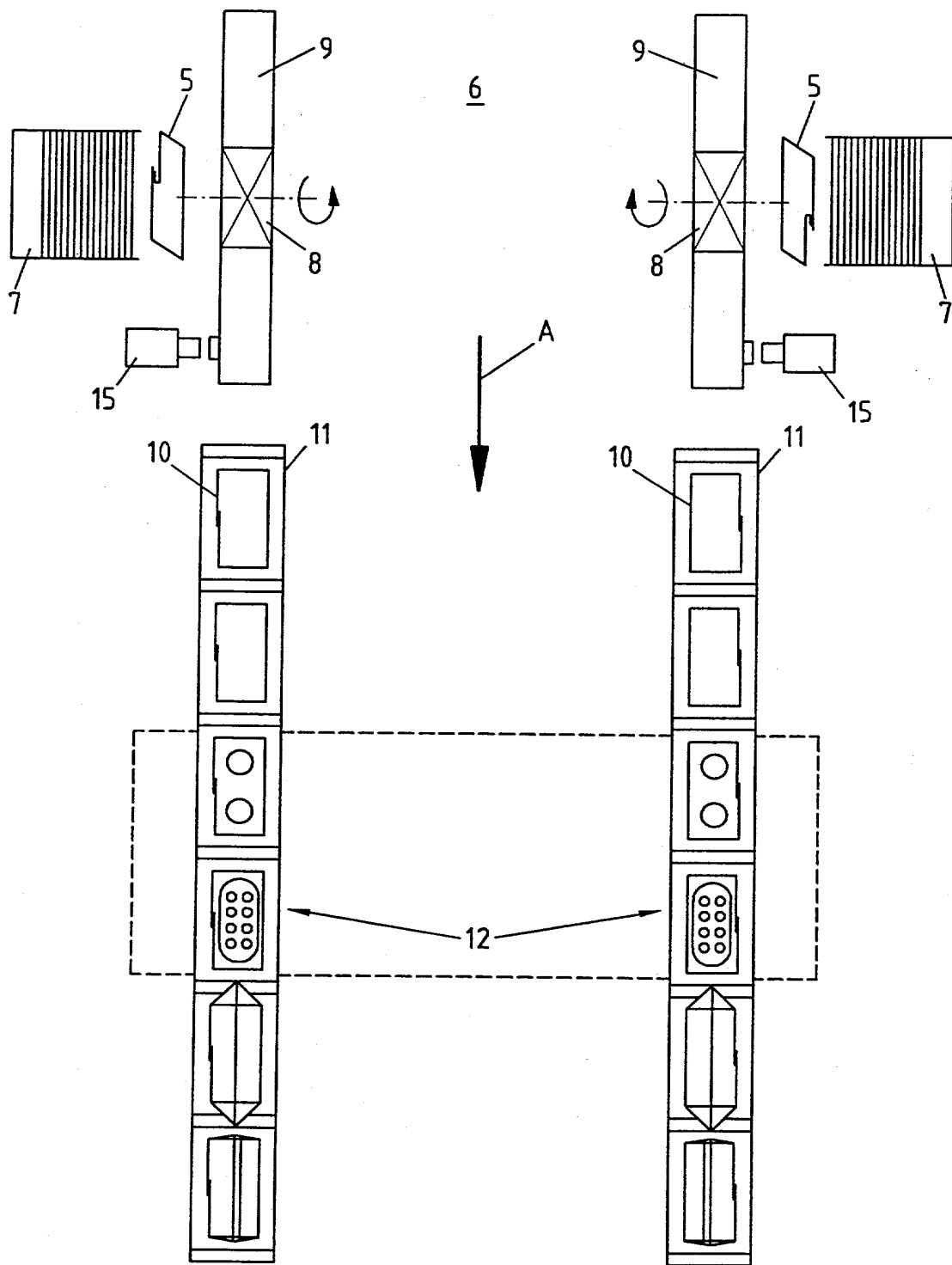


Fig. 2

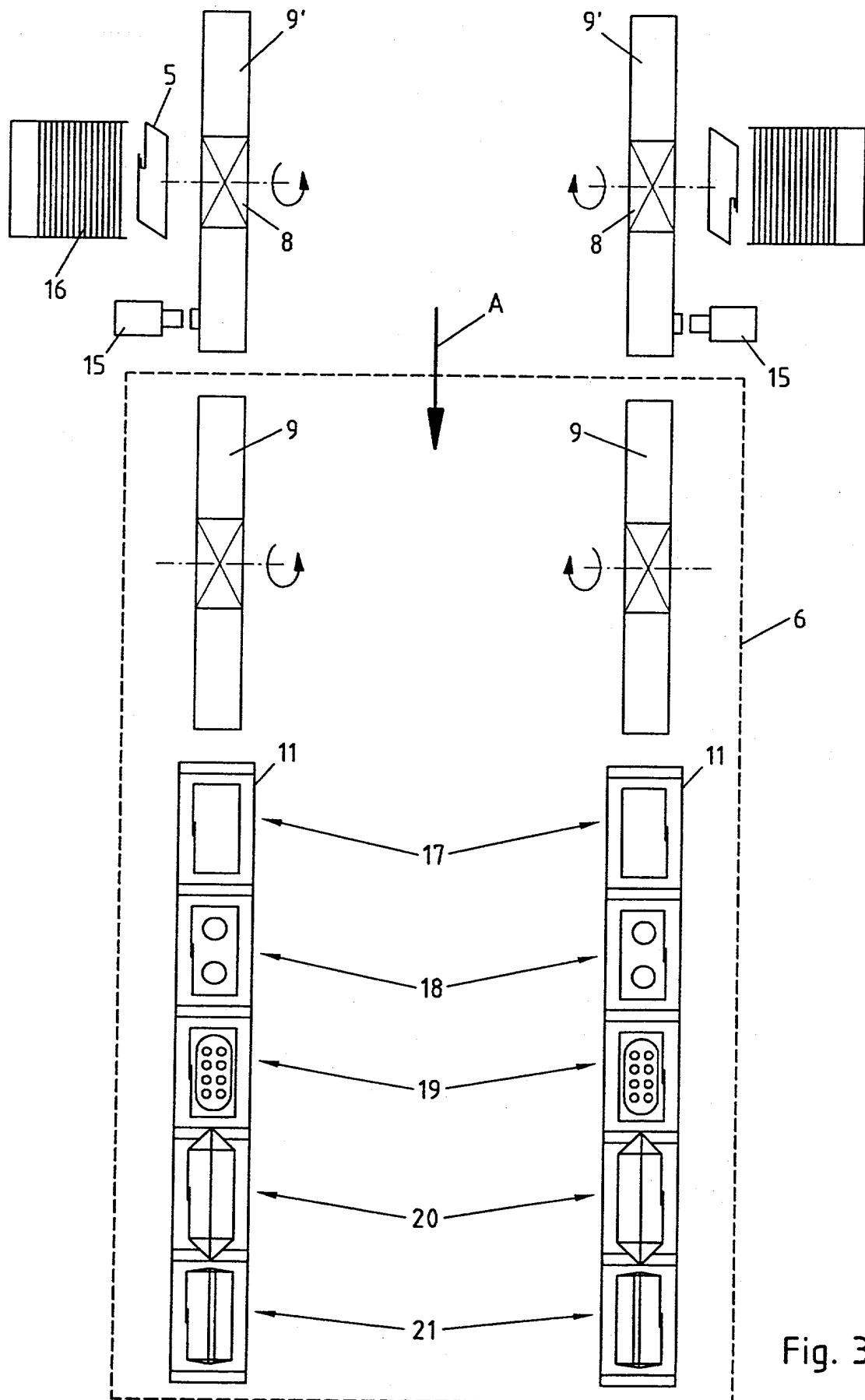


Fig. 3

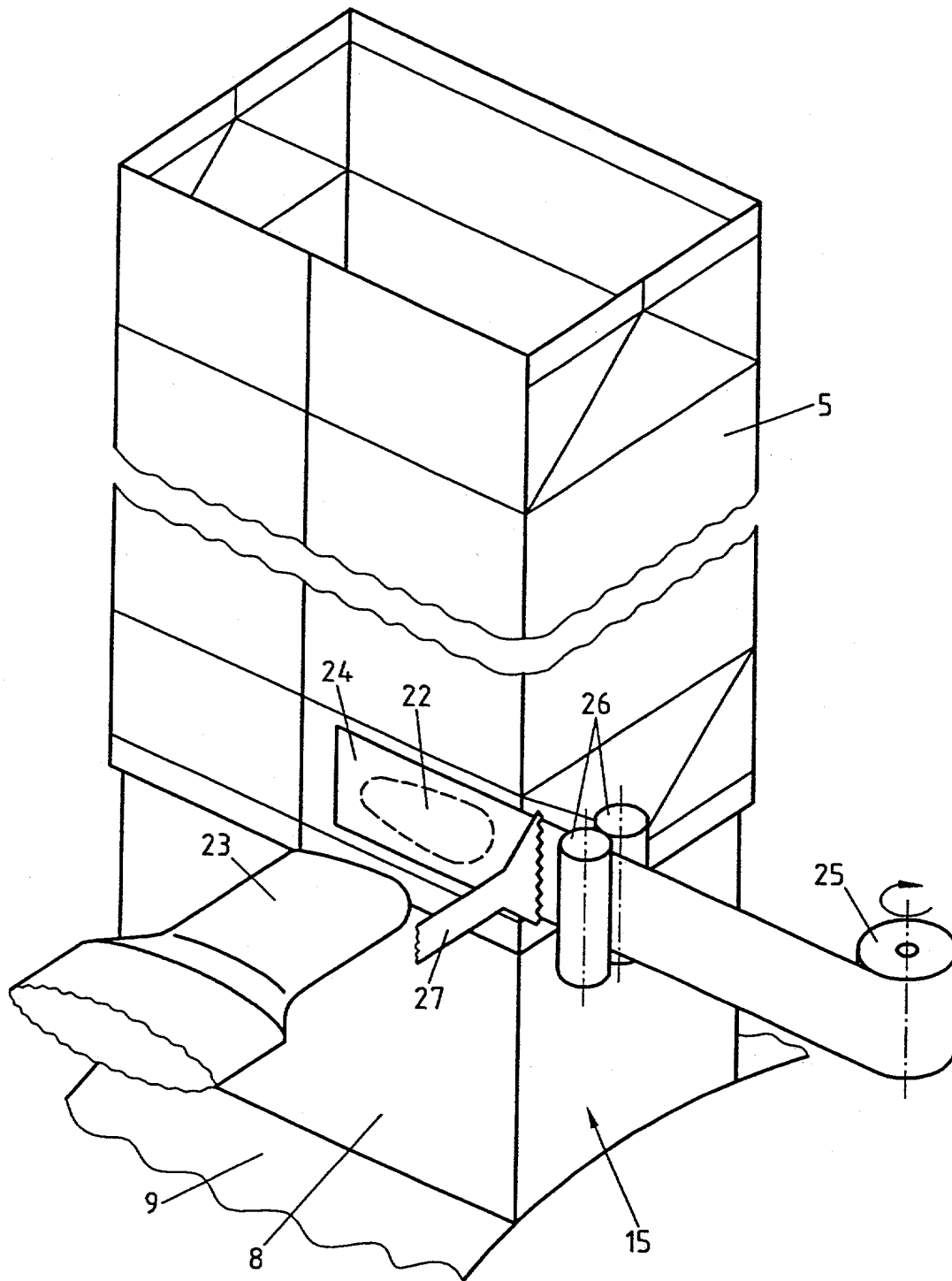


Fig. 4

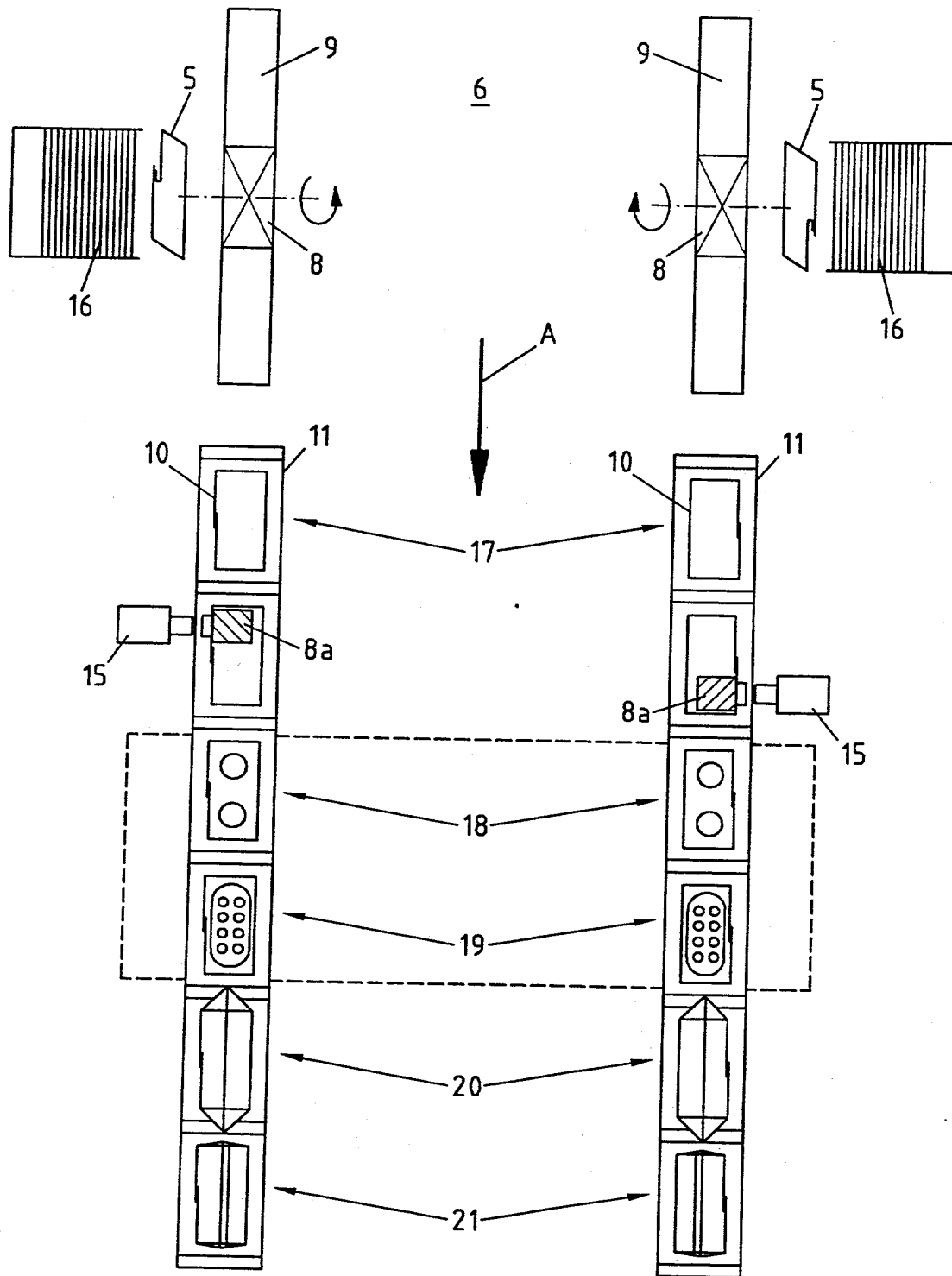


Fig. 5

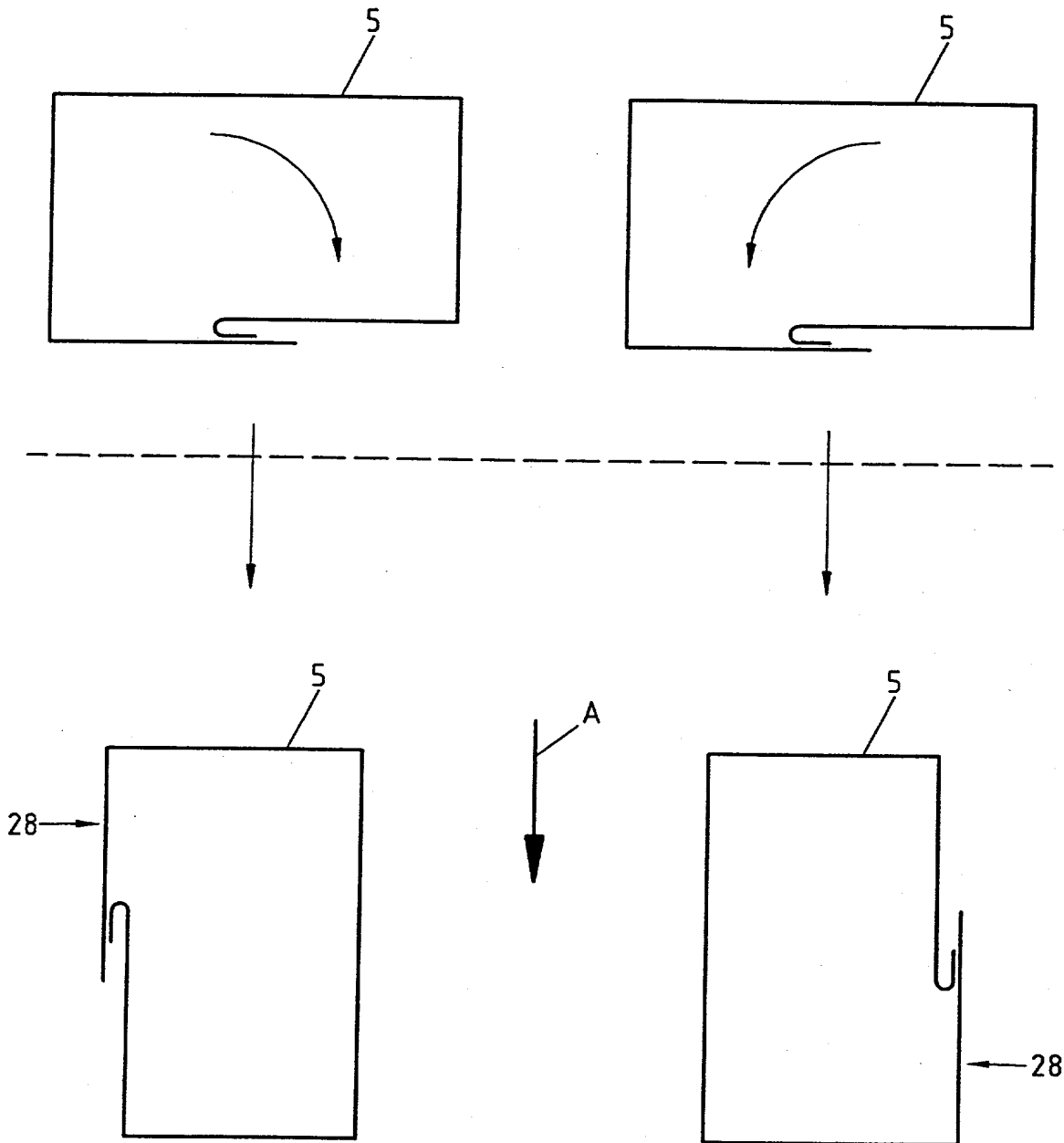
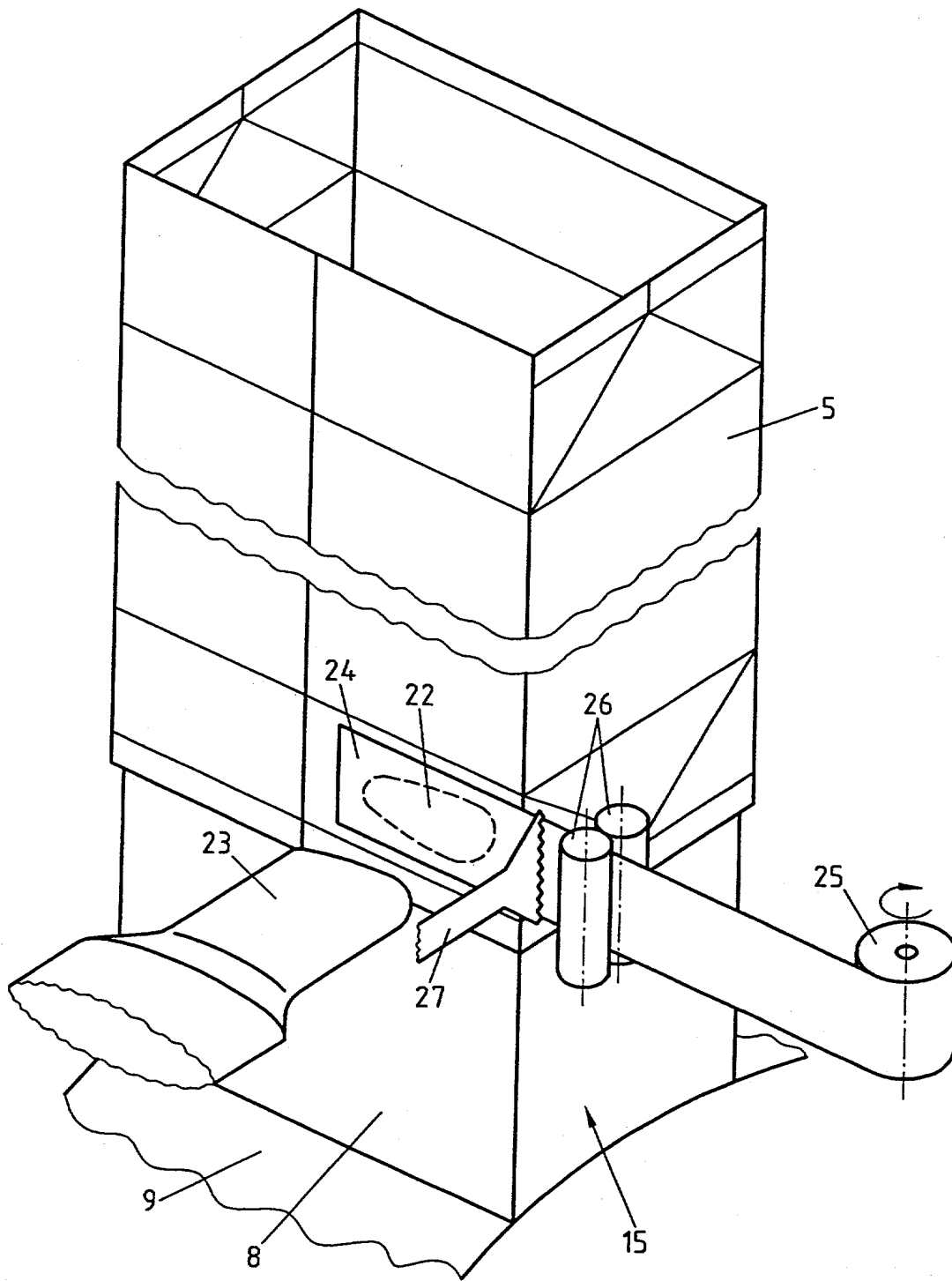


Fig. 6



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|   |                        |                    |
|---|------------------------|--------------------|
| <b>DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION</b><br>(37 CFR 1.63)  | Attorney Docket Number | C&F1032-035        |
|   | First Named Inventor   | Bomer, et al.      |
|   | COMPLETE IF KNOWN      |                    |
|   | Application Number     | 09 / 937,163       |
|   | Filing Date            | September 21, 2001 |
|   | Group Art Unit         |                    |
| <input type="checkbox"/> Declaration Submitted with Initial Filing<br>OR<br><input checked="" type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required) | Examiner Name          |                    |

**As a below named inventor, I hereby declare that:**

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**METHODS OF PRODUCING A LAMINATED PACKAGE AND THE LAMINATED PACKAGE PRODUCED THEREBY**

the specification of which (Title of the Invention)

☐ is attached hereto  
 OR  
☒ was filed on (MM/DD/YYYY) **09/21/2001** as United States Application Number or PCT International Application Number **09/937,163** and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

| Prior Foreign Application Number(s) | Country | Foreign Filing Date (MM/DD/YYYY) | Priority Not Claimed     | Certified Copy Attached? |                                     |
|-------------------------------------|---------|----------------------------------|--------------------------|--------------------------|-------------------------------------|
|                                     |         |                                  |                          | YES                      | NO                                  |
| PCT/EP00/02662                      | PCT     | 03/27/2000                       | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 199 15 150.4                        | Germany | 03/26/1999                       | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

| Application Number(s) | Filing Date (MM/DD/YYYY) |
|-----------------------|--------------------------|
|                       |                          |

☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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☐ A petition has been filed for this unsigned inventor

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☐ Additional inventors are being named on the \_\_\_\_\_ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.